Paper No. 28

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte BERENICE Y. REED-GITOMER and CHARLES Y. C. PAK

Appeal No. 2003-1071
Application No. 09/339,352

ON BRIEF[1]

Before WILLIAM F. SMITH, ADAMS, and GRIMES, Administrative Patent Judges.

ADAMS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-7, 10-14 and 17, which are all the claims pending in the application.

Claims 1 and 2 are illustrative of the subject matter on appeal and are reproduced below:

1. A method for screening for an increased risk of hypercalciuria comprising:

(a) obtaining a sample nucleic acid from a subject; and

[1] Appellants waived (Paper No. 27) their request for oral hearing. Accordingly, we considered this appeal on Brief.

(b) analyzing the sample nucleic acid to detect the presence or absence of a genetic mutation in a genomic region associated with an increased risk of hypercalciuria, wherein said genomic region is comprised in chromosome 1q23.3-1q24.

2. The method of claim 1, wherein the hypercalciuria is further defined as absorptive hypercalciuria.

PRIOR ART

No prior art is relied upon by the examiner.

GROUNDS OF REJECTION

Claims 1-7, 10-14 and 17 stand rejected under 35 U.S.C. § 101 as lacking a patentable utility, and under 35 U.S.C. § 112, first paragraph, as nonenabled.

We reverse.

BACKGROUND

According to appellants' specification (page 5), "there exists an area on human chromosome 1 that is genetically linked to absorptive hypercalciuria (AH), and thus to some forms of osteoporosis as well." As set forth on page 6 of appellants' specification, the claimed invention is drawn to

> A method for screening for an increased risk of hypercalciuria by obtaining a sample nucleic acid from a subject; and analyzing the sample nucleic acid to detect the presence or absence of a genetic mutation in [a] genomic region associated with an increased risk of developing hypercalciuria. The hypercalciuria is further defined as absorptive hypercalciuria or as osteoporosis with hypercalciuria. In certain embodiments, the osteoporosis with hypercalciuria is further defined as idiopathic osteoporosis with hypercalciuria or postmenopausal osteoporosis with hypercalciuria.

Examples 1 and 2, of appellants' specification (pages 112-124) disclose the clinical evaluation and linkage analysis of three kindred groups. Through this evaluation and analysis, appellants "identified a single locus on chromosome

1q23.3-[1]q24 linked to an AH phenotype in three unrelated kindreds with AH." Specification, page 122. According to appellants' specification (id.), "[m]embers of all three kindreds who were classified as phenotypically affected met the diagnostic criteria for AH.... The common genotypes at the chromosome 1q23.3-[1]q24 locus were identified in all of the related members with stones[2]." In addition, Example 5 of appellants' specification discloses (page 130), "[p]reliminary analysis of the frequency of this mutation in normal, AH and idiopathic osteoporotic populations revealed evidence of a significantly higher occurrence of this mutation in both the AH and idiopathic osteoporotic populations (Table 7)."

DISCUSSION

The claims are directed to a method for screening for an increased risk of hypercalciuria, by analyzing a sample nucleic acid to detect the presence or absence of a genetic mutation in chromosome 1q23.3-1q24. The sole issue on appeal is whether the claims are supported by a disclosure of utility sufficient to satisfy 35 U.S.C. § 101.[3]

According to the examiner (Answer, page 4), page 5 of appellants' specification discloses that the invention relates "to the discovery that there

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[2] According to appellants' specification (page 2), "Absorptive hypercalciuria (AH) causes stone formation in about 50% of the reported cases."

[3] While the examiner also rejected the claims under 35 U.S.C. § 112, first paragraph, for lack of enablement, that rejection is presented simply as a corollary of the finding of lack of utility. See Answer, page 7; Accord Answer, page 15, "the rejection made under 35 U.S.C. [§] 112, first paragraph, enablement, was made specifically, since the claimed invention is not supported by either an asserted utility or a well established utility...." Therefore, our conclusion with respect to the issue under 35 U.S.C. § 101 will also apply to the issue of enablement under 35 U.S.C. § 112.

exists an area on human chromosome 1 that is genetically linked to ... [AH], and thus to some forms of osteoporosis." The examiner asserts (id.), however, that the specification does not disclose a nexus between a specific mutation or set of mutations that would allow one to predict an increased risk of AH. In addition, the examiner asserts (id.), since appellants' specification discloses

> that the genomic region associated with an increased risk of AH may localize to more than one gene ... it is expected that there are several unique mutations associated with an increased risk of AH in different individuals.... This variability goes against the specification['s] assertion that the invention provides a simple genetic test for increased risk of AH in an individual.

The examiner agrees with appellants (Answer, page 7) that the specification sets forth the utility of the claimed invention, specifically, "the use of the claimed genomic locus in screening for an increased risk of developing hypercalciuria because the specification sets forth a genetic locus that is statistically related to the AH phenotype in the screened kindred groups." However, the examiner finds (id.), "[t]he specification does not provide a specific mutation that can routinely be asserted to be indicative of an increased risk of AH. Rather, for example, C823A[4] mutation in SEQ ID NO: 1 can also indicate idiopathic osteoporosis or nothing at all." In this regard, we note that the examiner acknowledges (Answer, page 5), appellants' specification discloses "a mutation in the 5' non-translated region at C823A of SEQ ID NO: 1..." which was demonstrated by RFLP analysis to be "present in normal, AH and idiopathic

[4] It appears that the examiner's reference to "C823A" refers to "a C to A transversion mutation at position 823 of SEQ ID NO: 1." See specification, page 129.

osteoporotic populations (see [specification] Table 7, page 130) with a significantly higher occurrence in AH and idiopathic osteoporotic populations."[5]

In the examiner's opinion (Answer, bridging paragraph, pages 5-6),

> [f]rom the data presented, it is clear that the discovery of any mutation in chromosome 1q23.3-1q24 in an individual subject cannot indicate an increased risk of AH because mutations such as C823A of SEQ ID NO: 1 are found across normal, AH and idiopathic osteoporotic populations and therefore no specific mutation has been shown to result in AH such that having the mutation indicates an increased risk of AH.

In response, appellants assert (Brief, page 7), "[t]he specification clearly discloses a specific genomic region of chromosome 1, 1q23.3-1q24, that is reasonably correlated to a specific disease condition, hypercalciuria, in particular absorptive hypercalciuria (AH)." According to appellants (Brief, page 9), "[t]he present invention is not limited to cases where a subject is diagnosed as positively having hypercalciuria. Rather, it encompasses all instances where one screens for a mutation in the 1q23.3-1q24 region, and thereby, determines whether or not the subject has a[n] increased risk of developing hypercalciuria." In this regard, appellants assert (bridging paragraph, Brief, pages 12-13), they

> provide sufficient evidence that inherited hypercalciuria is, in some individuals, linked to an inherited defect in the 1q23.3-1q24 region of chromosome 1. See Specification, page 130, Table 7. The [a]ppellants successfully established, through linkage analysis, that a genetic defect (e.g., specific mutations) exhibited by three unrelated, effected kindred localized to the q arm of chromosome 1 at 1q23.3[ ]-[1]q24. Based upon this information, it would not

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[5] We note that the examiner also recognizes (Answer, page 5) that the specification discloses other mutations, including one referred to by the examiner as "T483C". It appears that examiner's reference to "T483C" refers to "a T to C transition mutation at position 483 of SEQ ID NO: 1...." See specification, page 130. Nevertheless, the examiner finds (Answer, page 5), "no tests were performed to demonstrate that these mutations were more than just polymorphisms."

> require undue experimentation to derive a means of screening individuals for an increased risk of AH based upon a similar genetic defect.

Upon review of appellants' specification we find that the specification discloses (pages 129-130), the C823A mutation

> destroys an Alu 1 restriction endonuclease recognition site (AGCT to AGAT), thus providing a rapid RFLP screening method involving PCR amplification of the genomic DNA from a[n] individual followed by Alu 1 restriction of the resulting PCR product. Cleavage of the PCR fragment by Alu 1 represents a wild type allele with mutant alleles being resistant to Alu 1 cleavage. Preliminary analysis of the frequency of this mutation in normal, AH and idiopathic osteoporotic populations revealed evidence of a significantly higher occurrence of this mutation in both the AH and idiopathic osteoporotic populations (Table 7).

As we understand appellants' specification, an RFLP screening method can be used to detect the occurrence of a mutation that occurs "significantly higher" in AH and idiopathic osteoporotic populations than in control populations. See specification, pages 129-130, and Table 7. As appellants have explained (Brief, page 9), the claimed invention is not the positive identification of individuals with hypercalciuria, to the contrary, the claimed invention "encompasses all instances where one screens for a mutation in the 1q23.3-1q24 region, and thereby, determines whether or not the subject has a[n] increased risk of developing hypercalciuria." Accordingly, it appears that appellants have disclosed at least one method of screening for an increased risk of hypercalciuria according to the claimed invention.

We recognize the examiner's concern (Answer, page 8) that claim 1 "has no comparison group and one of skill in the art would not be able to ascertain if

screening is occurring in patients with mutations, having an allele for the disease or patients with the same mutation with no allele for the disease." Table 7 on page 130 of appellants' specification, however, reports the occurrence of the C823A mutation in a control population of 93, an AH patient population of 103, and an Idiopathic Osteoporotic patient population of 30. The examiner, however, has provided no evidence that this data is inconsistent with appellants' assertion (specification, page 130) that the occurrence of the C823A mutation is "significantly higher" "in both the AH and idiopathic osteoporotic populations" than control populations, or that detecting this mutation would not be useful as a method for screening for an increased risk of hypercalciuria as set forth in appellants' claimed invention.

We remind the examiner, under the utility requirement, the United States Court of Appeals for the Federal Circuit, our appellate reviewing court, has held that it makes no sense to require claims to set forth inventions that satisfy all the disclosed objectives, but that "[w]hen a properly claimed invention meets at least one stated objective, utility under § 101 is clearly shown." Raytheon Co. v. Roper Corp., 724 F.2d 951, 958, 220 USPQ 592, 598 (Fed. Cir. 1983).[6] Based on the foregoing analysis of appellants' specification, it appears that appellants' specification provides evidence that the claimed invention will meet at least one stated objective. "[T]he [examiner] has the initial burden of challenging a

[6] Raytheon also supports a determination that a claim, whether it is a product claim or a process claim, should not be held to be lacking utility on the grounds that the specification is not enabling for every disclosed use.

presumptively correct assertion of utility in the disclosure. Only after the PTO provides evidence showing that one of ordinary skill in the art would reasonably doubt the asserted utility, does the burden shift to the applicant to provide rebuttal evidence sufficient to convince such a person of the invention's asserted utility." In re Brana, 51 F.3d 1560, 1566, 34 USPQ2d 1436, 1441 (Fed. Cir. 1995) (citations omitted). In our opinion, the examiner has not met her burden of challenging appellants' assertion of utility. Having determined that the examiner has not met her burden, we find it unnecessary to discuss appellants' Declaration (Brief, appendix B, and exhibit 1).

For the foregoing reasons we reverse the rejection of claims 1-7, 10-14 and 17 under 35 U.S.C. § 101 and § 112, first paragraph.

OTHER ISSUES

We recognize the examiner's concern (Answer, page 8) that "with each new mutation, sequence analysis will [need to] be performed to ensure that the new mutations found are not simply polymorphism[s]." While it is not expressly stated in the text of the examiner's rejection, it may be that the examiner is concerned that the claims include inoperative embodiments. Stated differently, the examiner may be concerned that the full scope of appellants' claimed invention is not supported by an enabling disclosure. If so, the examiner is directed to Atlas Powder Co. v. E.I. DuPont De Nemours & Co., 750 F.2d 1569, 1576-77, 224 USPQ 409, 414 (Fed. Cir. 1984):

> Even if some of the claimed combinations were inoperative, the claims are not necessarily invalid. "It is not a function of the claims to specifically exclude ... possible inoperative substances...." In re

> Dinh-Nguyen, 492 F.2d 856, 859-59, 181 USPQ 46, 48 (CCPA 1974)(emphasis omitted). Accord, In re Geerdes, 491 F.2d 1260, 1265, 180 USPQ 789, 793 (CCPA 1974); In re Anderson, 471 F.2d 1237, 1242, 176 USPQ 331, 334-35 (CCPA 1971). Of course, if the number of inoperative combinations becomes significant, and in effect forces one of ordinary skill in the art to experiment unduly in order to practice the claimed invention, the claims might indeed be invalid. *See* e.g., In re Cook, 439 F.2d 730, 735, 169 USPQ 298, 302 (CCPA 1971).

On this record, however, the examiner failed to set forth a fact-based analysis of the record with respect to whether the number of inoperative embodiments of appellants' claimed invention would require one of ordinary skill in the art to experiment unduly in order to practice the claimed invention.

In this regard, we remind the examiner, in order to satisfy the enablement requirement of 35 U.S.C. § 112, first paragraph, a patent application must adequately disclose the claimed invention so as to enable a person skilled in the art to practice the invention at the time the application was filed without undue experimentation. Enzo Biochem, Inc. v. Calgene, Inc., 188 F.3d 1362, 1371-72, 52 USPQ2d 1129, 1136 (Fed. Cir. 1999). We note, however, that "nothing more than objective enablement is required, and therefore it is irrelevant whether this teaching is provided through broad terminology or illustrative examples." In re Marzocchi, 439 F.2d 220, 223, 169 USPQ 367, 369 (CCPA 1971). As set forth in In re Wright, 999 F.2d 1557, 1561-62, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993):

> When rejecting a claim under the enablement requirement of section 112, the PTO bears an initial burden of setting forth a reasonable explanation as to why it believes that the scope of protection provided by that claim is not adequately enabled by the description of the invention provided in the specification of the

> application; this includes, of course, providing sufficient reasons for doubting any assertions in the specification as to the scope of enablement.

Whether the disclosure is enabling, is a legal conclusion based on several underlying factual inquiries. To assist the fact finder in meeting her initial burden of setting forth a reasonable explanation as to why she believes the scope of the claimed invention is not adequately enabled by the description, our appellate reviewing court has outlined a number of factors that should be considered. As set forth in In re Wands, 858 F.2d 731, 735, 736-37, 8 USPQ2d 1400, 1402, 1404 (Fed. Cir. 1988), the factors to be considered in determining whether a claimed invention is enabled throughout its scope without undue experimentation include the quantity of experimentation necessary, the amount of direction or guidance presented, the presence or absence of working examples, the nature of the invention, the state of the prior art, the relative skill of those in the art, the predictability or unpredictability of the art, and the breadth of the claims.

We find no analysis of this record in a manner that is consistent with the factors set forth in Wands. Instead, we find only the examiner's unsupported conclusions as to why the specification does not enable the claimed invention. In the absence of a fact-based statement of a rejection based upon the relevant legal standards, the examiner has not sustained her initial burden of establishing a prima facie case of non-enablement. The burden of proof does not shift to appellant until the examiner first meets his burden. Marzocchi, 439 F.2d at 223-224, 169 USPQ at 369-370.

Accordingly, prior to any further action on the merits, we encourage the examiner to take a step back and reconsider the scope of the claimed invention together with the specification and relevant prior art. If, after having the opportunity to reconsider the record, the examiner is of the opinion that appellants' disclosure does not enable the full scope of the claimed invention the examiner should clearly articulate a fact-based reasoned analysis of her position in an appropriate office action.

REVERSED

William F. Smith
Administrative Patent Judge

Donald E. Adams
Administrative Patent Judge

Eric Grimes
Administrative Patent Judge

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